NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET

(pursuant to Nevada Administrative Code 445A.236)

Permittee Name: Staker & Parson Companies
P. O. Box 27598
Salt Lake City, UT 84116

Permit Number: NV0023531

Location: 2755 Last Chance Road
Elko, NV 89801
Township 34 N, Range 55E, Sections 1 & 12,
Elko County, Nevada

Discharge Location:
Latitude: 40° 50′ 40.2″ N
Longitude: 115° 44′ 1.7″ W

Drinking Water Protection: The facility from which discharge is proposed is within the 3000 foot Drinking Water Protection Area (DWPA) around the City of Elko public water supply Well 37. Portions of the facility are within the 20 year Wellhead Protection Area (WHPA) capture zone around City of Elko supply Well 24.

Bureau of Corrective Actions: There are no Bureau of Corrective Action (BCA) remediation sites within one (1) mile of the proposed facility.

General: Staker & Parson Companies owns and proposes to operate a sand and gravel mining and processing operation, adjacent to and south of the Humboldt River in Elko, Elko County, Nevada. The company proposes to discharge groundwater, collected during gravel pit dewatering activities, to the Humboldt River, at a rate of up to 6000 gallons per minute (gpm) or 13.4 cubic feet per second (cfs).

Because of the proximity of the mining operation to the river, groundwater flows into the excavation and must be pumped out to access sand and gravel material to be processed. The company proposes to pump water from the active extraction area, convey the water to a series of two earthen settling basins to remove fine particles, and discharge the water to the river.

Sand and gravel mining operations are administered under the Clean Water Act, as amended, and are specifically regulated under Part 40 CFR 436.30 of the Code of Federal Regulations. A National Pollutant Discharge Elimination System (NPDES) Permit is required.

Discharge Flow and Characteristics: Chemical analyses of the water to be discharged, submitted with the NPDES permit application indicate very good water quality. Samples were taken in July 2006 and December 2010 with the following analytical results:

Parameter	Reported Analytical Results (milligrams per liter unless specified)	
	2006	**2010**
BOD_5	<2	---
COD_5	23	---
Total Organic Carbon	5.4	---
Total Suspended Solids	3.0	---
pH (Standard Units)	8.6	8.5
Ammonia as Nitrogen	<0.10	---
Nitrate as N	<0.25	<0.25
Nitrite as N	<0.25	<0.25
Total Dissolved Solids	310	170
Chloride	21	11
Sulfate	61	21
Barium	0.068	0.021
Magnesium	16	4.3
Total Alkalinity as CaCO3	190	96
Total Petroleum Hydrocarbons	<0.5	<0.5
Oil and Grease	<5	<5
Volatile Organic Compounds	<2µg/l	<2µg/l
WAD Cyanide	<0.005	<0.005
Aluminum	<0.2	0.48
Antimony	<0.005	<0.005
Arsenic	<0.005	0.0039
Beryllium	<0.004	<0.001
Boron	<0.1	---
Cadmium	<0.005	<0.001
Chromium	<0.005	<0.005
Copper	<0.01	<0.01
Fluoride	0.51	0.28
Iron	<0.3	0.34
Lead	<0.005	<0.005
Manganese	<0.005	0.008
Mercury	<0.001	<0.0002
Nickel	<0.01	<0.01
Selenium	<0.005	<0.005
Silver	<0.005	<0.005
Sodium	21	21
Thallium	<0.002	<0.001
Zinc	<0.1	<0.05
Phosphorus	---	<0.10

Receiving Water Characteristics: The receiving water is the Humboldt River, upstream of the Palisade Gage control point and downstream of the Osino control point. Beneficial uses for the entirety of the Humboldt River are listed in Nevada Administrative Code (NAC) 445A.202. Water quality standards for the reach of the Humboldt River in question are listed in NAC 445A.204, and are given below. Current water quality data for this reach of the river, published by the NDEP Bureau of Water Quality Planning, are also listed.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES (Most Restrictive Beneficial use given in bold type)	HUMBOLDT RIVER MONITORING DATA (6/1996 – 11/2008)		
				AVG	MAX	MIN
Temperature °C - ΔT - Single Value[a]	ΔT = 0°C	ΔT ≤2°C	**7**[b] and 3.	12.1	24.3	-1
pH Units Standard Units	A-Avg. : 7.0 - 8.5 S.V. : 7.0 - 8.6	S.V. : 6.5 - 9.0 ΔpH : ±0.5	**3**,[b] **8**,[b] 7, 1, 2, 6 and 5.	8.48	9.2	7.7
Dissolved Oxygen - mg/l	—	S.V. : ≥5.0	**7**,[b] 3, 8, 2, 6 and 4.	9.54	18	2.5
Chlorides - mg/l	A-Avg. : ≤21 S.V. : ≤30	S.V. : ≤250	**6**,[b] 8, 1, and 2.	17.51	71	5
Total Phosphorus (as P) - mg/l	—	Apr.-Nov. Seasonal Avg. : ≤0.1	**7**,[b] 3, 6 and 4.	0.10	0.77	0.02
Nitrogen species (N) - mg/l	Total Nitrogen A-Avg. : ≤1.4 Apr.-Nov. S.V. : ≤2.4	Nitrate S.V. : ≤10 Nitrite S.V. : ≤1.0	**6**,[b] 8, 1, 2, and 7.	Total Nitrogen		
				0.54	2.0	0.18
				Nitrate		
				0.04	0.33	0
				Nitrite		
				<0.01	0.02	<0.01
Total Ammonia (as N) - mg/l	—	f	**7**.[b]	<0.1	0.2	<0.1
Total Dissolved Solids - mg/l	A-Avg. : ≤350 S.V. : ≤400	A-Avg. : ≤500	**6**,[b] 1 and 2.	302.0	500	200
SuspendedSolids - mg/l	—	Annual : ≤80[e] Median	**7**.[b]	59.1	576	1
Sulfate - mg/l	—	S.V. : ≤250	**6**.	39.43	76	7
Color - PCU	d	No Adverse Effects	**6**.[b]	17.4	80	5
Turbidity - NTU	—	S.V. : ≤50	**7**[b] and 6.	29.63	340	1.5
Fecal Coliform - No./100ml	Annual Geometric Mean : ≤20 S.V. : ≤150	≤200/400c	**3**,[b] 4, 6, 1, 8 and 2.	18.5	600	<10
E coli - No./100ml Annual Geometric Mean Single Value	— —	≤126 ≤410	**3**,[b] and 4.	20.4	2005	1
Sodium - SAR	—	A-Avg. : ≤8	**1**[b] and 6.	Not Monitored		

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone.
b. The most restrictive beneficial use.
c. Based on the minimum of not less than 5 samples taken over a 30-day period, the fecal coliform bacterial level may not exceed a geometric mean of 200 per 100ml nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100ml.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. The maximum allowable point source discharge is S.V. ≤80 mg/l of suspended solids.
f. The ambient water quality criteria for ammonia are specified in NAC 445A.118.

Beneficial Use Codes

1. Irrigation;
2. Watering of livestock;
3. Recreation involving contact with the water;
4. Recreation not involving contact with the water;
5. Industrial supply;
6. Municipal and/or domestic supply;
7. Propagation of aquatic life including warm-water fisheries; and
8. Propagation of wildlife

The October 2006 303(d) State of Nevada "List of Impaired Waterbodies" provides a compilation of pollutants or stressors of concern for the reach of the Humboldt River from Osino to Palisades Gage. Total iron is listed. A total maximum daily loads (TMDL) for total phosphorus exists for the reach of the Humboldt River in question.

Proposed Effluent Limitations and Special Conditions: The following are the proposed effluent limitations and monitoring requirements:

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Monitoring Frequency	Sample Type
Flow (MGD)	5.184	Monitor & Report	Continuous	Flow Meter
pH (Standard Units)	---	6.5 – 9.0	Weekly	Discrete
Turbidity (NTU)	---	50	Weekly	Discrete
Temperature (°C)	---	Monitor & Report	Monthly	Discrete
Dissolved Oxygen (mg/l)	---	≥5.0	Monthly	Discrete
Total Petroleum Hydrocarbons (mg/l)	---	1.0	Monthly	Discrete
Total Suspended Solids (mg/l)	80	---	Monthly	Discrete
Total Ammonia as N [1] (mg/l)	See Footnote 1A	See Footnote 1B	Monthly	Discrete
Total Nitrogen (mg/l)	≤1.4	Apr – Nov: ≤2.4	Quarterly	Discrete
Total Dissolved Solids (mg/l)	Annual Average: 350	Monitor & Report	Quarterly	Discrete
Total Iron (mg/l)	1	Monitor & Report	Quarterly	Discrete
Chlorides (mg/l)	Annual Average: 21	Monitor & Report	Quarterly	Discrete
Total Phosphorus (mg/l)	Apr – Nov Seasonal Avg. 0.1	---	2nd, 3rd & 4th Quarters	Discrete

MGD = million gallons per day
mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units

1. For each sample event, formula terms contained in A and B below shall have the following meaning: ***pH* and *T* are *field measurements of facility discharge*** taken at the same time and location as the water sample destined for the laboratory analysis of ammonia.

   A. The chronic criteria of water quality with regard to the concentration of total ammonia are subject to the following:

      (a) The facility discharge Monthly chronic concentration of total ammonia, in milligrams of nitrogen per liter, shall be calculated by the NAC 445A.118 Table 2 chronic concentration by **value from table matrix of temperature and pH or by formula** for the 30-Day average for each discharge sample event as follows:

$$\left[\frac{0.0577}{1+10^{7.688-pH}}\right]+\left[\frac{2.487}{1+10^{pH-7.688}}\right] x\, MIN\ [2.85,\ 1.45\ x\ 10^{0.028\,x\,(25-T)}]$$

      where : MIN = lesser of comma separated values; T = temp. Celsius deg.; x = multiply

      (b) The concentration of total ammonia, in milligrams of nitrogen per liter, expressed as a 30-day average must not exceed the applicable chronic criterion as calculated more than once every 3 years on average, and the highest 4-day average within the 30-day period must not exceed 2.5 times the applicable chronic criterion.

      Measurement frequency of once per 30-day (Monthly) is an acceptable indicator for evaluating total ammonia chronic criterion and may be used in reporting to demonstrate compliance of discharge event calculated limit. However, if a sample analysis exceeds the allowed calculated chronic limit in part (a), the **measurement frequency** must be increased to a minimum of 4 consecutive days within the 30-day period so that chronic criterion part (b) can be applied for determining permit compliance.

B. The acute criteria for water quality with regard to the concentration of total ammonia are subject to the following:

(a) The facility discharge Daily Maximum acute concentration of total ammonia, in milligrams of nitrogen per liter, for **warm water fisheries** shall be calculated by the NAC 445A.118 Table 1 acute concentration by **value from table matrix of pH and fishery water type or by formula** for the 1-hour average for each sample event as follows: $\left[\frac{0.411}{1+10^{7.204\ -\ pH}}\right]+\left[\frac{58.4}{1+10^{pH\ -\ 7.204}}\right]$

(b) The concentration of total ammonia, in milligrams of nitrogen per liter, must not exceed the applicable acute criterion as calculated more than once every 3 years on average.

Measurement frequency for evaluating total ammonia acute criterion as daily maximum shall utilize the same **measurement frequency** required for that of evaluating the chronic criteria of water quality defined in A above. The total ammonia concentration determined by laboratory analysis for each sample event shall be compared to the same event's calculated acute criterion limit.

Schedule of Compliance: The Permittee shall implement and comply with the provisions of the Schedule of Compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the Schedule of Compliance.

a. The Permittee shall achieve compliance at the time of permit issuance.

b. **By MMM DD, 2011**, the Permittee shall submit, for review and approval, the Operations and Maintenance (O&M) Manual for the facility, prepared in accordance with appropriate sections of NDEP guidance document WTS-2 ".Minimum Information Required for an Operation and Maintenance Manual for a Wastewater Treatment Plant". The O&M Manual shall be submitted to the following address:

Department of Conservation and Natural Resources
Nevada Division of Environmental Protection
Bureau of Water Pollution Control
ATTN: Compliance Coordinator
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701

Rationale for Permit Requirements: The permit limitations are based on the following rationale:

Flow: Flow limit is set at the level requested by the applicant. The limit of 5.184 MGD is approximately 8.0 cubic feet per second (cfs). At low flow conditions on the Humboldt River (14 cfs), this volume could account for approximately 57% of the total stream flow, and could have significant impact on river water quality.

pH: pH limits are specified in Part 40 CFR 436.30 of the Code of Federal Regulations. This limit is the only categorical limit specified in the CFR for sand and gravel mining operations. These same limits are listed in the water quality standard for beneficial uses for the Humboldt River at Palisade Gage, as listed in NAC 445A.204. The water quality of this reach of the Humboldt River does not meet the Requirements to Maintain Existing Higher

Quality (RMHQ) listed in NAC 445A.204. Further, pH is used in the calculation of the Total Ammonia limit.

Temperature: Temperature is used in the calculation of the Total Ammonia limits. Monitoring is required at no less than the same frequency as Total Ammonia.

Dissolved Oxygen: The dissolved oxygen limit is the water quality standard for beneficial uses for the Humboldt River at Palisade Gage, as listed in NAC 445A.204.

Chloride: Chloride levels for the Humboldt River at the Palisade Gage meet the requirement to maintain existing higher quality (RMHQ) levels of 21 mg/l for the annual average. However, the river's single value chloride level exceeds the RMHQ limit of 30 mg/l. Therefore, the proposed permit limit shall be set at the annual average, and a daily maximum limit shall not be applied.

Total Phosphorus: The total phosphorus limit is the water quality standard for beneficial uses for the Humboldt River at Palisade Gage, as listed in NAC 445A.204

Total Iron: The total iron limit is set at the 96-hour average limit for aquatic life, as listed in NAC 445A.144, "Standards for toxic materials applicable to designated waters".

Nitrogen Species: The Humboldt River meets the RMHQ total nitrogen levels for both the annual average 1.4 mg/l and the single value of 2.4 mg/l. Therefore, these limits apply to the discharge.

Total Ammonia: Total Ammonia is limited pursuant to NAC 445A.118, and is protective of aquatic life where freshwater fish in early life stages are reasonably expected to be present.

Total Dissolved Solids: Total dissolved solids (TDS) levels for the Humboldt River at the Palisade Gage meet the requirement to maintain existing higher quality (RMHQ) levels of 350 mg/l for the annual average. However, the river's single value TDS level of 500 mg/l exceeds the RMHQ limit of 400 mg/l. Therefore, the proposed permit limit shall be set at the annual average, and a daily maximum limit shall not be applied.

Total Suspended Solids: The total suspended solids (TSS) limit is the water quality standard for beneficial uses for the Humboldt River at Palisade Gage, as listed in NAC 445A.204.

Turbidity: The turbidity limit is the water quality standard for beneficial uses for the Humboldt River at Palisade Gage, as listed in NAC 445A.204.

Total Petroleum Hydrocarbons: The limit for this constituent is set pursuant to Best Management Practices and Bureau of Corrective Actions action levels.

Procedures for Public Comment: The Notice of the Division's intent to issue an NPDES permit authorizing this facility to discharge to the Humboldt River for a five-year period, subject to the conditions contained within the permit, is being sent to the **Elko Daily Free Press** and the **Reno Gazette Journal** for publication. The Notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and

time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, emails or hand delivered items) to the Division is **March 14, 2011 by 5:00 P.M.**

A public hearing on the proposed determination can be requested by the applicant, any affected State or interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period, and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue the proposed NPDES discharge permit for a period of five (5) years.

Prepared by: Janine Hartley, P.E.
Draft: February 2011
Final: